

# **Neglected and underutilized Plant Species in the Shouf-Aley Area of Lebanon: an ethnobotanical study**

**Presented by**

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# Lebanese rich Biodiversity

- **More than 3000 vascular plant species**
  - 778 Genera
  - 113 families
  - Out of them hundreds are traditionally useful species
- **One species in every 3 Km<sup>2</sup>, between the highest in the world.**
  - France 1/130
  - Switzerland 1/14
  - Syria 1/62
- **Diversity of ecosystems**
- **The country is a centre of origin for numerous crop species and wild relatives.**





# Useful Lebanese Species



- **Medicinal, hundreds:** *Salvia*, *Lavandula*, *Centaureum*, *Fibigea*, *Poterium*, *Hypericum*, *Teucrium*, ..
- **Aromatic and condimental:** *Origanum*, *Thymus*, *Thymbra*, *Satureja*, *Rhus coriaria*, *Rubus*, ..
- **Wild relatives:** *Dacus*, *Allium*, *Aegilops*, *Crataegus*, ..
- **Ornamentals:** *Iris*, *Narcissus*, *Hyacinthus*, *Cyclamen*, ..
- **Forage plants:** *Vicia*, *Trifolium*, *Medicago*, *Melilotus*, etc



# Problems of Useful wild Species of Lebanon

- **Lack of documented literature**
  - We don't know what do we have
- **Or if present it is imported, unupdated and non scientific**
  - Confusion between different local vernacular names
  - Confusion with occidental translations for different local plant and uses
    - *Salvia fruticosa* and *Salvia officinalis*,
    - *Origanum vulgare* and *Origanum syriacum*,
    - *Tilia* and *Elaeagnus*,
    - Oregano and thyme, etc.
- **Scarcely addressed by research, conservation and valorisation activities**
  - Few data on the composition and chemical properties justification
  - Gradual loss of associated local knowledge



# NU plants: Genetic erosion is not the only loss



- “Silent” losses are faced today:
  - loss of local knowledge
  - social changes and transmission of indigenous knowledge
  - marginalization of fragile groups -including women
  - disappearance of traditional users and other custodians

# Actual ethnobotanical trends of NUS in Lebanon

- Recent rural origin of most of the Lebanese living in cities:
  - Populations are still attached to these food habits
  - Still remember these species and the related use “recipes”
  - Fortunately conservation of inherited food habits
- Nevertheless
  - Change of the life style:
    - More wives are working than in the past
    - Less time for food gathering and processing
  - Development of local market by new actors
  - Real long term risk of ethnobotanical erosion

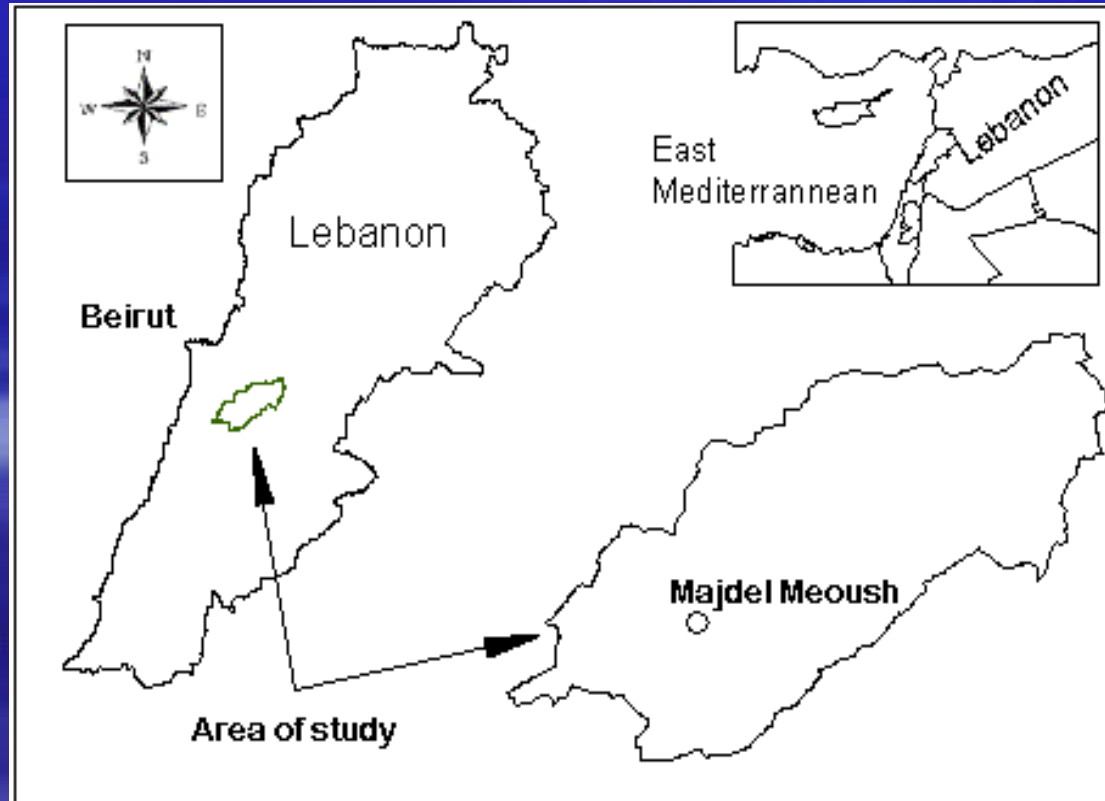
# Focus of project

- Assessment and survey of genetic diversity and associated indigenous knowledge of all wild useful species.
- Focus on four model species:
  - Characterization (inter and intra sp. level)
  - Domestication efforts and agronomic practices testing



# The area of study

- 100 km<sup>2</sup> in the upper water basin of the Damour river
- Representing the Mediterranean ecosystems
- Rich biodiversity
  - Threatened by human pressure
  - Including a part of a Natural Reserve.





# NUS wild species

## Project partners

- AUF
- IPGRI CWANA office in Aleppo Syria.
- INAPG (Institut National Agronomique Paris-Grignon), France.
- Contributions from Lebanese and European institutions and projects
  - Ministry of Agriculture
  - National Council for Scientific Research (CNRS)
  - European Union and USAID Development projects
  - Holy-Spirit University of Kaslik, Lebanon
  - University of Catania, Italy

# Ethno-botanical Results

**The analysis shows more than :**

- **300 vernacular names**
- **More than 175 species**
- **More than 139 genera**
- **61 botanical families**



# Ethno Botanical Diversity

- *Asteraceae* is the most diverse family with 17 genera, followed by *Fabaceae* (11) and the *Lamiaceae* (10).
- 7 families are known in all the villages, 43 families in at least 3 villages.
- *Lamiaceae* is distinctively the first medicinal (164 citations) followed by the *Asteraceae* (67), the *Malvaceae* (65) and the *Apiaceae* (45).
- Meanwhile,
- *Asteraceae* is the first edible (172 citations) followed by *Apiaceae* (131) then the *Lamiaceae* (111).
- Many genera are wild relatives or already cultivated:
- *Cichorium, Lepidium, Vicia, Lathyrus, Rosa, Allium, Asparagus, Anchusa, Malva, Origanum, Salvia, Foeniculum, Alcea, Capparis, Thymbra, Satureja, Lavandula, Matricaria, Lepidium, Trifolium, Scorzonera, Sonchus, Silene, Rumex, Rubus, Portulaca, Amaranthus, Lupinus, Mentha, Lactuca, Cyclamen, Carthamus, Apium, etc.*



# Uses

- 1397 use citations assessed

- 628 medicinal
- 769 edible

- Edible uses

- Fresh 494 (Salad, fresh (snack food), fruits, etc)
- Cooked 478 (boiled, fried, paste and fatayer etc.),
- Pickles 76 (salt, vinegar, etc.)
- Aromatic exclusively 36.

- (*Rhus*, *Laurus*, etc.). (*Foeniculum* in omlets, *Origanum* in the paste, *Thymbra* in salad, *Satureja*, etc.).
- Meanwhile the fruit of *Foeniculum* in salted olives marinade is considered as aromatic; *Thymbra* in cheese, etc.

- médicinal Use:

- Tisane 112;
- General medicinal 102;
- Kidneys 79 (stones, prostate, diuretic);
- External 67 (wounds, boutons (pimple), skin, ointment, etc.);
- Stomach 62 (digestion, diarrheic, motorisation, etc.);
- Respiratory 60 (cough, rhume, grippe, etc.);
- Diabetes 36; Inflammation 32; Liver 21; Malaria 16; Toothache and mouth 15; Fumigation and inhalation 12; Colitis 10; Panacea 10; Blood pressure 8; antidote 8; cancer 7; dysenteries 7; cholesterol 6; allergy 6; bwassir 5; divers 29.



# Ethnic and gender diversity

- **Local knowledge variety:**

- between villages

- **Ethnic diversity**

- (*Cyclamen persicum* is used by druzes and limited number of christians in mixed villages as a food habit transition.

- Same for *Asparagus* spp., *Silene vulgaris*, *Inula viscosa*, etc.

- Christians are more affected by globalization occidentalised with simplified food habits).

- **Gender diversity.**

- Men are more specialized in the field of medicinal plants (recognition, distribution, harvesting window, use, administration, etc.).

- Women hold better the field of edible plants: recognition, distribution, Harvesting window, traditional uses and recipes, etc.





# Ethnobotanical confusions

- Vernacular name may be attributed to an appearance or to a use leading to more than one specific species or genera:
- “Ishbet el taloul عشب التالول” is *Chrozophora tinctoria* or *Heliotropium bovei* or *H. hirsutissimum* in Majdel Méouche. It correspond to *Hypericum pallens* or *H. thymifolius* in Ammiq and in Ramlieh.
- “Ishbet el Ghabra عشب الغبرا” is *Teucrium polium* or *T. divaricatum* in Majdel Méouche, and only *T. polium* elsewhere.
- “Zaatar زعتر”, correspond to *Origanum syriacum* or *O. ehrenbergii*, or *Thymbra spicata*, or *Thymus*, etc.
- “Chindab شنداب” is *Echinops viscosus* in Majdel Méouche and *Eryngium falcatum* in Ammiq, etc.
- “Himmaydah حميضة” could be *Oxalis pes-caprae* or *O. cernua* as well as *Rumex* spp.
- Numerous plants are called “Lsan el hamal” or “Lsan el anza لسان العنزة” or “Lsan el Kharouf لسان الخروف” or “Lsan el tawr لسان الثور” the similar leaf shape oblong-lancéolé to oval-elliptique (*Anchusa azurea*, *Echium italicum*, *Plantago lanceolata*, *P. major*, etc.).



# Vernacular names etymology

- Vernacular names present an organic link with the plant.
  - Some vernacular names refer to the use:
    - “Ishbet el taloul”,
    - “Ishbet el jorh عشب الجرح”
    - “Kissayset el Bellaneh خسيصة البلانة”, etc.
- Use properties:
  - “Korwais قرويس” for irritant plants such *Urtica* spp.
  - “Sbaynkhah سبينخة”, a minorative of spinach, for *Silene Aegyptiaca* of similar use.
  - “Touaimi ثوية”, a minorative of garlic,
  - “Jizzayrah جزيرة”, a minorative of carot,
  - “bissayleh بصيلة” for onion.
  - “Ishbet el Raml عشب الرمل” for *Phagnalon rupestre*

# Vernacular names etymology (cntd)

## ■ Refer to plant morphology:

- “Msayrini مصيريني” or “Msarin ed djajeh مصارين الدجاجة” or “Shbaykeh شبيكي” for *Stellaria media*,
- “Halak es sit حلق الست” for *Capparis spinosa*,
- “Chaar el noury شعر النوري” or “Shoushet en nourieh شوشة النورية” for *Asparagus* spp.,
- “Ishbet el kouni عشبة القوني” or “Bizr laktine بذر لقطين” for *Fibigea* spp.,
- “Zail el mohr ذيل المهر” for *Equisetum* spp.,
- “Kaf ed dib كف الدب” for *Salvia sclarea* and *Verbascum* spp. etc.

## ■ Refer to color:

- “Ishbet el Ghabra الغبرا عشبة” for *Teucrium polium*,
- “Ishbet el barshi البرشي عشبة”
- “safran صفرين” for *Rhamnus alaternus* of yello wood
- “Tiz es saadane طيز السعدان” for *Arbutus unedo* of red wood

# Vernacular names etymology (cntd)

- **Refer to plant taste**
  - “himmaydah حميضة”, for *Rumex* spp. and *Oxalis* spp.,
  - “khibz خبز” bread and its derivatives (kibbayzeh خبيزة , khibz el rab خبز الرب for *Malva* spp.
  - “Mirmair مرمير” a derivative of sauer for *Sonchus oleraceus* au goût amer.
- **Associated to wild animal names for unedible plants:**
  - “Khibz el kaak خبز القعق” or “Sam el Hayeh سم الحية” for *Arum* spp.,
  - “Khiar el himar خيار الحمار” for *Ecbalium elatrium*,
  - “Khaoukh el Jin خوخ الجن” for *Mandragora autumnalis*, etc.



# Genetic Diversity richness of the area of study

- This richness over an area of 100 km<sup>2</sup> represents 0,6 family and more than 1,4 genera and 2,6 vernacular name per Km<sup>2</sup>.
- More than the half of the 113 Lebanese families and 18% of the 778 genera of vascular plants, are used in the area of study of only 1% of the area of Lebanon
- Compared to similar studies, the area is remotely highly richest
  - i.e. in Italy (133 used species, 48 families over 533,7 km<sup>2</sup> including 84 herbaceous, 29 woody (shrubs or trees) and 20 of mushrooms (Pieroni, 1999).

# Conclusion

- **There is:**
  - **precious healthy food and medicinal inherited habits**
  - **Public awareness increase on public health, pesticide residues, food basket erosion, etc.**
  - **Good international collaboration basis (North-South, IPGRI, IDRC, etc)**
- **All the prerequisites of a successful conservation/valorization are assured.**

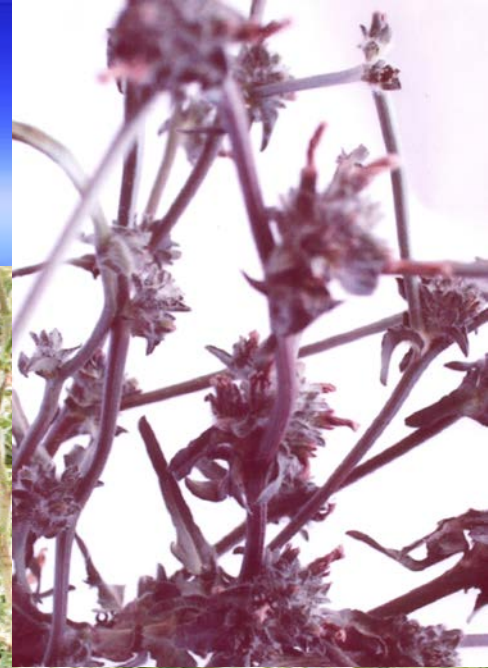
# *Perspectives*

- Deep taxonomic studies, to consolidate vernacular names
- Pharmacopeia for Lebanon,
- Promotion of the cultivation and use, (conservation through use).
- Public awareness to overcome the ethnobotanical actual lacuna
- Protection policies and valorization of the national plant genetic wealth



# *Cichorium intybus*

leafy vegetable fresh and cooked





# *Gundelia tournefortii*

Cooked vegetable and ornamental





# *Salvia fruticosa*

medicinal plant





# *Origanum syriacum*

domestic and industrial plant and condiment

